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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF HOME ECONOMICS

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GRADES AND QUALITIES OF FOOD

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Many foods now appear in the market bearing terms indicative of quality or size grading. In some cases these grades have been developed by the Federal Government; in others by local authority; in still others by the industry. So far, grading has been developed largely from the producers' end of the marketing process and is of benefit to the distributor, and to the consumer who can buy according to specification on the wholesale market. Certain items, however, can now be purchased by grade in some retail markets. Progress in bringing information on grades to the consumer will depend largely on consumer demand for such information. At the present time the adjustment of price to size and quality grades is not very sensitive, and probably it will not be until more purchasing information is available for the use of the individual housewife.

The following paragraphs summarize briefly what different agencies have done, or are doing to bring such information to the consumer directly or through the retail dealer. The appended references may be consulted if more detailed descriptions are desired for the various items.

Canned Fruits and Vegetables

Definite grade terms referring to canned fruits and vegetables do not always appear on the labels where they would serve to guide the consumer's selection. They are not required by Federal law except on certain low-quality products. Under the McNary-Mapes amendment (July 1930) to the Food and Drugs Act, the Secretary of Agriculture is given the power to establish a standard of quality for each kind of canned food except meat and milk products. After the standard is established, any canned vegetable entering into interstate commerce which does not measure up to the requirements must have conspicuously printed on the label the words "Below U. S. Standard. Low Quality But Not Illegal." Sub-standard fruits must be labeled "Below U. S. Standard. Good Food - Not High Grade." In certain special cases such as soaked dry peas and artificially colored peas some explanatory information must appear in addition to the conventional sub-standard legend. Slack filled containers, including those carrying an excess of liquid packing medium, must be labeled "Slack Fill" and, when such is the case, "Contains Excess Added Liquid." This requirement applies even to food for which no quality standards have as yet been issued. To date (May 1933) minimum standards (10) <sup>1/</sup> have been established for canned peaches, pears, peas, tomatoes, apricots, and cherries. Products which carry the sub-standard labeling are wholesome food, even though they may not be up to the recognized standard in some other respects.

Although this substandard labeling is the only quality information required by Federal law, the Secretary of Agriculture, under the Farm Products Grading Law, has promulgated grade standards for canned corn (both whole and cream style), peas, snap beans, and tomatoes. Tentative standards are being prepared for fruits and other vegetables. These standards bear the designations Grade A (fancy), Grade B (extra standard or choice), Grade C (standard), and Off-Grade (substandard). Many canners are voluntarily labeling their products by these grade designations. If so labeled, the products must conform to the standards set. This simple system of grading of canned foods, if generally used, will do much to eliminate some of the present purchasing problems of the consumer.

In addition to these grade designations recently established by the Department of Agriculture, certain terms are recognized by the canning trade and by wholesale distributors as descriptive of quality, and sometimes appear on the labels. Under this terminology fruits are graded as Fancy, Choice, and Standard; vegetables as Fancy, Extra Standard, and Standard. The Fancy grades in both cases are carefully selected for uniformity of size, color, and maturity and always represent the most perfect portion of the crop. The Choice fruits and Extra Standard vegetables are next best, the Standard grade ranks third. Effort is made to keep these grades uniform from year to year regardless of crop conditions. Fancy fruits are commonly packed in a heavier sirup than the Choice and Standard grades.

<sup>1/</sup> Numerals in parentheses refer to Literature Cited.



In buying canned goods, the consumer would expect the finest grades to command the highest retail prices, and this is generally true when the products bear definite quality designations. However, price is not always a reliable guide if a statement of grade does not appear on the label and if selection must be made on the basis of price and brand name only. Grading tests have shown that sometimes the lower priced canned food receives the higher grade rating. Table 1 shows the price per can of some fruits and vegetables, classified according to commercial grades which were recognized by the distributor but not always definitely stated on the labels.

Table 1.- Price<sup>1/</sup> of foods of different commercial grades as indicated by the distributor, when sold in cans of same size.

Food	Size of can	Price per can of grades -		
		Fancy	Choice or extra Standard	Standard
	No.	Cents	Cents	Cents
<b>Fruits:</b>				
Apricots .....	2-1/2	25.0	22.5	—
Fruits for salad .....	2-1/2	—	25.0	21.0
Peaches .....	2-1/2	16.3	14.5	12.5
Pears .....	2-1/2	23.0	19.5	13.5-17.0
Plums .....	2-1/2	—	19.0	12.5
<b>Vegetables:</b>				
Corn .....	1	7.5	—	5.6
	2	11.5-14.5	9.5	6.3
Peas .....	1	14.0	10.0	6.3
	2	19.0	15.0	9.5-11.5
Spinach .....	2-1/2	15.0	12.5	—
Snap beans, cut .....	2	19.0	—	6.3-8.3
Tomatoes .....	2	—	12.0	6.3-7.5
	3	—	17.0	12.0

<sup>1/</sup> Based on retail prices of 1932, Washington, D. C.

In the canning industry attention has been given to the standardizing of can sizes. The sizes most frequently used for fruits and vegetables are shown in table 2. The most commonly used can size for fruits is No. 2-1/2 and for vegetables, No. 2. Larger and smaller sizes are available to suit the needs of any group. One large can is generally a more economical purchase than several small ones. The No. 5 and No. 10 sizes are used chiefly by institutions and are purchased wholesale, but on demand they may be obtained from retail stores.

Table 2.- Common sizes of standard cans for fruits and vegetables

Can number	Average net weight	Contents in cupfuls	Approximate number of servings
Buffet or picnic	8 oz.	1	2 (small)
No. 1	11 oz.	1-1/3	2
No. 1 tall	16 oz.	2	3 - 4
No. 2	20 oz.	2-1/2	4 - 5
No. 2-1/2	28 oz.	3-1/2	5 - 7
No. 3	33 oz.	4	6 - 8
No. 5	3 lbs., 8 oz.	7	10 - 14
No. 10	6 lbs., 10 oz.	13	20 - 26

Several sizes of cans in common use look very much alike unless closely compared as to height and diameter. However, the net weights of contents differ by several ounces, and the consumer should make it a habit to read the label. For example, can No. 300 is 4-7/16 inches high and 3 inches in diameter. Can No. 303 is 1/16 of an inch shorter but 3/16 of an inch greater in diameter than No. 300, and its contents usually weigh from 1 to 2 ounces more. Unless care is taken either of these cans may be mistaken for the No. 2 can which is 4-9/16 inches high and 3-7/16 inches in diameter. However, the No. 2 can holds from 4-1/2 to 5-1/2 ounces more than the No. 300 can, and from 3 to 4 ounces more than the No. 303.

Canned foods appear in cans of so many sizes and shapes that only a few of the more usual sizes have been mentioned.

### Dried Fruits

Dried apples, apricots, peaches, and pears are classified into five size and quality grades as Extra Fancy, Fancy, Extra Choice, Choice, and Standard. The Extra Fancy grade contains the largest, most uniform, cleanest, and best fruits. Figs are graded as Fancy, Choice, and Standard. Stemmed raisins have a size grading and are referred to as Four-, Three-, Two-, or One-Crown, the Four-Crown being the largest size. The largest cluster raisins are the Six-Crown or Imperial Clusters, the smallest are the Three-Crown Layers. (3). The smaller sizes are less expensive and can be used to equally good advantage for many purposes.

Prunes, when sold by bulk, are graded according to the number required to make a pound, and are referred to as 20-30's, 30-40's, and so forth, down to the very small 110-120's. There are fewer prune pits, and therefore there is a larger percentage of edible prune meat in a pound of the larger ones. However, the prices are generally enough lower on the smaller prunes to make them the more economical purchase when the cost per pound of edible prune meat is considered.

### Fresh Fruits and Vegetables

Standards for grading fresh fruits and vegetables have been drawn up by the United States Department of Agriculture. In establishing the standards for different grades some of the points considered are degree of ripeness, uniformity of size and shape, color, and freedom from injuries caused by mold, decay, freezing, cuts, bruises, worms, insects, and plant diseases. While the grade terms and the number of grades established for the different varieties of fruits and vegetables differ somewhat, in general U. S. Fancy is the finest grade, and is applied only to the choicest specimens. U. S. No. 1 and U. S. No. 2 designate the next two grades. The Department of Agriculture has issued a buying guide for consumers (8) which gives many details as to the selection of specified fruits and vegetables.

Citrus fruits are graded for quality and also for size. Orange sizes run from 80 to 324, according to the number per crate. Grapefruit are also graded according to the number in a crate, the sizes ranging from the large number 28's to the small 126's. Lemon sizes range from 240 per box for the very large to 490 for the very small. Tangerine sizes run from 48 for the large to 216 for the small. As a rule citrus fruits having smooth, thin skins are juicier than the varieties having rough, thick skins.

### Rice

The rice most usually sold in retail stores is what is known as milled rice, or rice from which the hulls, germs, and bran layers have been removed. At least eleven varieties of milled rice are recognized commercially. The Department of Agriculture has drawn up official standards by which each variety may be graded as Extra Fancy (U. S. No. 1), Fancy (U. S. No. 2), Extra Choice (U. S. No. 3), Choice (U. S. No. 4), or Medium (U. S. No. 5).

Brown rice, or rice from which hulls only have been removed, is also available. Practically the same varieties or classes are recognized for brown rice as for the milled. The brown rice may be graded as Extra Fancy, Fancy, and Choice.

Effort is being made to bring variety names and grade terms into more common use in the retail trade where the information will be helpful to the consumer. As the different varieties of rice have different cooking properties it is important that varieties should not be mixed.

### Milk

The consumer may choose from among several grades of whole milk which are on the market. Points to consider in selecting milk are given in some detail in Farmers' Bulletin 1705 (2). Prices of milk vary with the grade. Raw certified milk is the most expensive grade because it is costly to conform to the conditions of handling and cleanliness which must be fulfilled to insure the low bacterial count required for milk of this grade. Most milk is graded as A, B, or C, and milk sold in the city is, as a rule, pasteurized. Grade A pasteurized milk is produced under more sanitary conditions than either grade B or C pasteurized milk, and hence when delivered to the customer has a lower bacterial count (1,2). Grade A milk may cost from 2 to 5 cents per quart more than grade B milk. No grade lower than B is recommended for drinking purposes unless it is boiled. While the purchase of



"loose" or unbottled milk is not recommended, the unbottled milk may be obtained in some cities at from 2 to 4 cents less per quart than the same grade of bottled milk.

In addition to fluid milk of different grades, the market affords milk in evaporated and dried forms. Evaporated milk is sold in "tall" cans containing 14-1/2 ounces and in "baby size" cans containing 6 ounces. Seventeen ounces of evaporated milk has approximately the food value of a quart of whole milk. As yet, dried skim milk is not widely available in the retail food stores, but it can often be purchased in small amounts from bakeries or ice cream companies, or may be purchased from the wholesaler or manufacturer. In many communities it is the cheapest form in which milk-solids-not-fat can be obtained.

#### Butter

The United States Department of Agriculture under the provisions of the Food Products Inspection Law maintains a service for the grading of butter (9). According to official ruling butter is classified as dairy butter, which is made on a farm; creamery butter, made in a creamery or factory; packing stock butter; ladled butter; process or renovated butter; and grease butter.

In scoring the first three classes of butter, maximum ratings are given to various factors as follows: Flavor, 45; body, 25; color, 15; salt, 10; package, 5; total, 100. Butter scoring above 94 shall be fine, sweet, fresh, mild, and clean in flavor . . . Diminishing desirability is expressed by lowered scores. Any butter scoring below 75 is considered unfit for food and is classified as grease butter. Only butter officially scoring 92 or more may be accompanied by a dated "certificate of quality" issued by authority of the United States Department of Agriculture. Under proper methods of distribution, which include adequate refrigeration, this certified butter should reach the consumer in first-class condition within 2 weeks of the time of the grading. Except for butter sold under U. S. certification of quality, the score of the butter sold in most retail outlets is not made easily available for the information of the consumer. Regardless of the score given to the butter on the above scale of rating, any butter which contains less than 80 percent of butter fat is considered as an adulterated product under the terms of the Food and Drugs Act, and is therefore illegal.

#### Eggs

In some retail markets, eggs are sold in sealed cartons bearing on the seal the date of grading and either the inscription U. S. Specials, or U. S. Extras. Either of the inscriptions on the dated seal indicates that, on the date specified, the eggs were examined by a Federal egg grader, who noted the size of the eggs, the condition of the shell, and by candling, the size of the air cell and the condition of the yolk and white. 2/

To be graded as first quality, or U. S. Special, eggs must have clean, sound shells; regular, localized air cells not more than one eighth inch in depth; the yolks may be dimly visible; the whites must be firm and clear; and there must be no visible development of the germ. The requirements for the second quality eggs, or U. S. Extra, which are usually the best quality available, are similar to those of the first, except that the air cell may be one fourth inch in depth, and the yolk visible. There are several lower grades for eggs but only the two mentioned are retailed under a "certificate of quality." It is very important to note the date on the seal or certificate of quality, because under unfavorable holding conditions, the quality of eggs may deteriorate rapidly after inspection.

Besides being graded for quality the eggs are graded for size. In either quality, one may obtain large eggs, having a minimum weight of 24 ounces per dozen; medium-sized eggs, weighing at least 20-1/2 ounces per dozen; or small eggs weighing 17 ounces per dozen.

#### Meats

Meats entering interstate commerce are inspected and passed by the Bureau of Animal Industry of the United States Department of Agriculture. The circular purple stamp "U. S. INS. 'D P'S'D'" on fresh meats, and appropriate labels on cured, canned, and packaged products containing meat, show that the meat came from healthy animals and is wholesome food. Many State laws and city ordinances provide for the inspection of meat distributed within their jurisdiction.

In addition to this required inspection meats may be classified and graded for quality according to a system worked out by the Bureau of Agricultural Economics. Under

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2/ U. S. Dept. Agr., Bur. Agr. Econ. Egg Standardization. Leaflet No. 2, 21 p., 1929. (mimeograph).

this system beef (7) is divided into five classes: steer, heifer, cow, bull, and stag. Each class is then subdivided into grades as follows: Prime, or No. A 1; Choice or No. 1; Good, or No. 2; Medium, or No. 3; Common, or No. 4; Cutter, or No. 5; and Low Cutter, or No. 6. The standards for a Prime piece of beef are so very high that only a small percentage of carcasses can be stamped as of that grade. Most beef falls into the Medium grade. About one-fifth is of the Common grade. Lamb, mutton (5), veal, and calf (6) carcasses are graded as Prime, or No. A 1; Choice, or No. 1; Good, or No. 2; Medium, or No. 3; Common, or No. 4; and Cull, or No. 5.

After being graded, the meats are stamped (4) by or under the immediate supervision of, a Federal official. The imprint, which shows the class and the grade of the meat, is applied to the carcass by a roller in such a way that the information appears on all the major retail cuts. This stamp, at a little distance, appears like a purple band across the meat. "The ink used is a pure vegetable compound and is entirely harmless. Under most conditions it disappears when the meat is cooked."

As it is extremely difficult to make an accurate judgment of meat quality from appearance, this grading of meat by an expert should be very helpful to the consumer. The quality of any given grade is uniform throughout the country and does not change from season to season. The stamp of quality on each meat cut prevents substitution of a quality inferior to the one ordered. The use of meat grading for retail markets will probably become more widespread as customers develop the habit of ordering by grade. The different cuts of meat are priced to correspond with quality grades, and to conform to general ideas of desirability.

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